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New EU battle may delay Vista launch

Microsoft could be banned from launching Windows Vista in the European Union (EU) unless certain new features are removed. In the past, the EU has taken a dim view of Microsoft appearing to use its monopoly position unfairly by bundling powerful functions into Windows that lock out competing technology such as RealNetworks' RealPlayer. As we reported last month (*News*, June 2006), EU Competition Commissioner Neelie Kroes is worried that Microsoft will continue the practice by integrating features in Windows Vista that will displace popular technologies controlled by rivals.

These could include an internet search facility that will compete with third parties such as Google and Yahoo!, DRM technology in Media Player that will attack Apple's iTunes and the new Metro document format, which is regarded by many as an attempt to kill off Adobe's PDF. Security specialists including Symantec have relayed their concerns to the EU that Microsoft's plans to introduce anti-malware features into Vista could have an unfair impact on their businesses.

In February IBM, Sun and Oracle filed a complaint

to the EU competition authorities asking them to ensure that Microsoft does not add extra functions to Windows Vista that could affect their businesses.

"We're concerned about the possibility that [Vista] will include various elements that are currently available separately either from Microsoft or other companies," said EU competition spokesman Jonathan Todd. "There is also the possibility that we won't have all the necessary technical information for competitors to be able to make a product that is compatible with Vista."

Microsoft denies that it intends to behave anti-competitively. "Keeping the industry and regulators informed of our product development plans has been, and will remain, a priority," said a company statement. "We have worked hard to include partners and competitors in our planning so they can build products and services that work with Windows Vista."

Previously, the US and EU authorities acted against Microsoft after it released new versions of Windows. While the EU is still in dispute with Microsoft over its compliance with existing rulings on Windows XP, the US Department of Justice in effect threw in the towel, even after a US judge ruled that the company had used its monopoly unfairly to exclude competitors.

The problem for regulators is that, by the time the courts decipher complicated and drawn-out technical arguments, the market has moved on. In March 2004 the EU ordered Microsoft to offer a version of Windows XP in Europe stripped of Windows Media Player, but no PC manufacturers offer it with their systems.

The EU has not yet instituted any official inquiry into Microsoft's plans for Windows Vista. Instead, its latest move was a response to a letter from Microsoft, which asked for an outline on any potential regulatory problems the company might encounter when the much-delayed Windows Vista finally launches.

The EU's entirely separate action against Microsoft over Windows XP continues.

• See *News Analysis* on page 249.



▲ EU Competition Commissioner Neelie Kroes has warned Microsoft about Windows Vista's features

Free broadband offer "to trigger price war"

Carphone Warehouse has launched a free broadband service to customers who use its TalkTalk landline phones, in a move that some experts say will trigger a broadband price war.

The service, which starts in July, will cost £21 per month and includes free unlimited local and national calls, and free unlimited international calls to 28 countries. A broadband connection of up to 8Mbit/s, higher than many current services, is also included.

Carphone Warehouse CEO Charles Dunstone said that the new deal will cut residential bills by as much as 60 per cent. Equivalent services, such as BT Option 3 and NTL Telephone & Broadband, cost £38 and £33 a month respectively.

Dunstone said the company had been able to offer the cut-price service because it is spending over £100 million on local loop unbundling. By installing its own local switches in BT exchanges, Carphone Warehouse

can ensure that its customers do not have to pay BT's monthly line-rental charge, although signing up for the service requires a one-off connection charge of £30.

Carphone Warehouse said it hopes to extend its new service to reach 70 per cent of the UK population by May 2007, when it will have equipment installed in over 1,000 local BT exchanges. The company is using the bait of free broadband to help it reach its target of 3.5 million residential landline phone customers by March 2009, up from 2.6 million today.

Competitors are not standing still. Wanadoo is conducting UK trials for its own unbundled broadband service, and AOL and Tiscali are also working on similar services. BSkyB is planning a major broadband launch later this year. The prospects of a price war mean that industry analysts are predicting that broadband access will double by the end of the decade, up from around 10 million customers today.

EU domain proves popular

The new .eu internet domain has been more popular than anyone predicted, but enthusiasm for its successful launch has been tempered by allegations of widespread fraudulent applications by cybersquatters.

Over 700,000 .eu domain names were registered on the morning of 7th April, when the new domain for people and businesses in the European Union was opened to the general public.

"We are satisfied to see that the interest in .eu has been so large and that many already regard .eu as a useful complement to [the] internet's national top-level domain names," said Marc Van Wesemael, managing director of Eurid, a not-for-profit consortium set up to manage the domain. By 10th April there were 1.7 million domains registered, making .eu the seventh most widely used domain on the web.

Before the domain was open to anyone to register, there was a so-called 'sunrise' period of two

months, during which government agencies and companies with registered trademarks were allowed to register their names. This was an attempt to prevent the widespread cybersquatting and profiteering that afflicted domains such as .com and .co.uk when they first became available.

Not everyone was impressed with these efforts. "Europe's .eu domain is being hijacked," wrote Bob Parsons, CEO of major US domain registrar Go Daddy, in his weblog. "What happens when you match an inept registry with crafty businessmen? The answer is a really large scam. This is what is taking place with the 'landrush' introduction of the new .EU top-level domain name. This breaking story is a fascinating study of both grand manipulation and lax administration on the part of the Eurid registry."

While he is an interested party who has admitted to missing out in the race for .eu domain names, Parsons has a point. For example,

the .eu domains for cities such as Birmingham, Manchester, Liverpool and Dublin ended up in the hands of private speculators or known cybersquatting outfits, some of whom are not even based in Europe. Addresses such as these were intended to be controlled by city councils or chambers of commerce. The bodies in question were clearly not made aware that they needed to register, or the communication system broke down somewhere.

Parsons claimed that Eurid should have a system for checking registrars and preventing single companies registering hundreds of times with slightly different names. The lack of such a system has resulted in what he described as "phantom registrars created to hijack the .eu landrush". The result, according to Parsons, will be that most people who want to buy a .eu domain address will end up paying more than they should because unscrupulous companies will inflate the prices.

Vista-capable PCs before Christmas

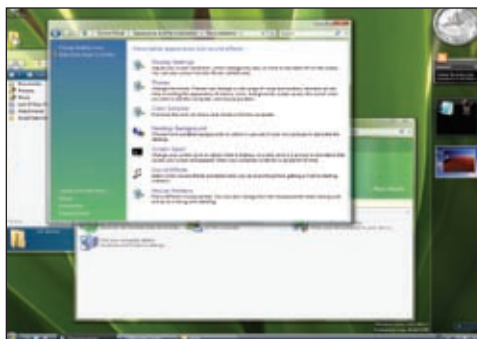
Microsoft has launched a scheme designed to put computer shoppers' minds at rest when buying a new PC. It allows vendors to brand their boxes with a Vista Capable logo if the system is powerful enough to run the new Windows operating system. The intention is to encourage prospective customers not to defer PC purchases until Windows Vista is launched.

The low-end Vista Home Basic Edition version of Windows requires a PC capable of running Windows XP, at least 512MB of RAM and a video system powerful enough to cope with Microsoft's DirectX 9.

There is no guarantee that a Vista Capable PC will be able to run more power-hungry versions of Vista that include such technologies as Aero. This is the flashy new user interface that includes translucent windows, animated 3D 'flips' between applications and 'live icons' that display an image of the underlying file. Aero will require you to run a copy of Vista Home Premium, Business, Enterprise or Ultimate, rather than just Home Basic.

Microsoft has also published technical guidelines revealing that a computer capable of running Aero will require a graphics card with dedicated memory of at least 64MB or, failing that, a PC with 1GB of system memory. Vista alone requires a minimum of 512MB of RAM.

Industry analysts at the Gartner Group warned that more than half of business PCs currently in use will be too slow to run Windows Vista. Gartner recommends that companies with PCs purchased before 2006 should not bother to upgrade them to run Vista. Instead, it suggests they wait until it's time to buy a new PC because of Vista and Aero's hardware demands.



▲ Windows Vista's new Aero interface will require online activation before it works

Online registration planned for Aero

Microsoft has revealed that Windows Vista's new Aero interface will require the operating system to contact Microsoft over the internet to ensure that a legal copy of Vista is installed. If this does not happen, Aero will not work. The check-up system is a more draconian version of the Windows Genuine Advantage scheme that the company rolled out a couple of years ago for people wanting certain Windows upgrade downloads. At the time, the scheme warned people that they were running unlicensed versions of Windows.

At the end of April this year, the Windows Genuine Advantage scheme moved up a gear. Users who run pirated versions of Windows will now see an alert on their desktops and, until they buy a licence, will be unable to receive enhancements over the internet. These include the anti-spyware program Windows Defender and Internet Explorer 7. Critical updates will continue to be available.

IN BRIEF

▶▶ PAY UP OR YOUR DATA GETS IT

A new Trojan that holds your data to ransom has been uncovered by anti-virus firms.

Dubbed Troj/Ransom-A, the program threatens to delete one file from an infected computer every 30 minutes until the \$10.99 (around £6) ransom is paid via the Western Union money transfer service.

The malware activates itself and warns that it has hidden itself away and is undetectable unless an ID number is entered in the computer. After that, the Trojan promises to remove itself.

The program also disables the Ctrl-Alt-Del key combination to prevent anyone trying to close the Trojan before it deletes files.

▶▶ BT GRABS DABS.COM

BT has bought the online retailer Dabs.com. The well-known technology shop will become a wholly-owned subsidiary of BT, allowing the company to use it to push its business, networking and support services as well as embark upon co-branding initiatives.

However, Dabs.com will continue to operate independently and will not be rebranded.

▶▶ NME PILOTS NET RADIO STATION

The music magazine NME is to pilot a peer-to-peer radio service, which will be called MyNME Radio.

Based on technology provided by partner Mercora, the beta service will allow users to access each other's music files and stream them across the internet. They will also be able to access and listen to their own music collections remotely, simply by logging in on an internet-connected computer.

▶▶ GOOGLE MAPS GETS TO EUROPE

Google has extended its street maps, driving directions and integrated local search service into mainland Europe. The service already covered the UK.

Google Maps now includes France, Germany, Italy and Spain. Street maps have also been rendered for several other countries, although these have to be accessed via routes from the countries listed above.

IN BRIEF

RIAA SUES COMPUTERLESS FAMILY

The Walls family from Georgia, USA, faces a fine of thousands of dollars in compensation if found guilty of infringing eight copyrights. And this is just what a lawsuit launched by the Recording Industry Association of America (RIAA) alleges they have done, despite the fact that the family claims not even to own a PC.

Georgia's *Rockmark Journal* reports that the Walls family were told by a newspaper reporter that they were the subject of a lawsuit and had not received any notification themselves.

"I don't understand this," James Walls said. "How can they sue us when we don't even have a computer?"

He added that, as the family had only lived at the address for less than a year, it may be possible that the previous occupants had been the real file-sharers.

MICKEY MOUSE MOBILE PHONES

The Disney Corporation has announced plans to run its own phone service in Britain later this year. The move follows an earlier launch in the US.

Disney plans to offer a 'family-oriented' phone service, which will enable parents to control their children's access to unsuitable material. For instance, they will be able to put a limit on the amount of time that children spend on the phone and block access to specified websites.

As with some existing mobile phone services from the likes of Tesco and Virgin, Disney will be a Mobile Virtual Network Operator (MVNO), and will not own its own equipment. The company will rent spare capacity from the O₂ network.

SKYPE HITS 100 MILLION DOWNLOADS

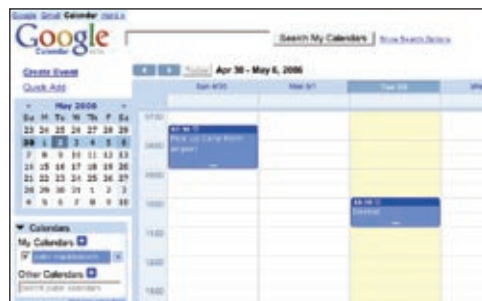
VoIP company Skype has announced that it has over 100 million subscribers to its free internet telephony service.

The company claims that no other company has generated that number of downloads in just two-and-a-half years. While no-one doubts that 100 million people around the world have signed up for the Skype service, no figures have been provided that specify how many of those 100 million people are active users and how many have downloaded the service but not used it.

Google Calendar arrives

Google has launched an online calendar service, which is the first to enable users to manage and publish several different calendars from inside the same application. Google Calendar is intended to transform the company's successful search service into a fully featured web portal to compete with Yahoo! and MSN.

The calendar (www.google.com/calendar) is still a beta product and faces strong competition from Microsoft's Outlook and Yahoo!'s online calendar, the most popular online calendar in the world. Google's recently launched Finance, Orkut and Talk services have not set the world alight. The Gmail service also lags way behind Yahoo! and MSN in terms of subscribers. Industry analysts estimate Gmail has only around 10 million users, less than one tenth of the user base of Yahoo! mail or Microsoft's Hotmail.



▲ Google Calendar allows you to share as much or as little of your calendar with others as you like

However, Google Calendar's ability to manage multiple calendars could attract users of other calendar products. "Google has rethought the entire role of a calendar," said Forrester Research analyst Charlene Li. "Like many people, I have different calendars for work and home and my children's activities. Google Calendar lets you control how much you want to share each sub-calendar with different people. This is the only calendar program that lets you do this. If I want to share any aspect of my calendar in, say, Yahoo!'s calendar, I have to share all of it," she said.

Google is also touting a feature called QuickAdd, which adds the ability to create calendar entries easily using 'natural language'. Type in 'dinner with Helen on Sunday at 6pm' and an entry should appear on the proper date. Google said it has also integrated Calendar with its Gmail service, so emails are scanned for event details such as times, dates, places and names. If the Calendar thinks it has spotted an appointment, a pop-up windows asks if you want to add it to your calendar. Early reports have been mixed as to how well it works.

Google Calendar can also share information with other calendar programs, thanks to its support for XML and iCal data formats. Google will soon add interoperability with Outlook. "Google, in the past six months, has put things out there that were good, not the typical wow, [but] I think the Google Calendar has that," said Chris Sherman, executive editor of Search Engine Watch. "The one downside to the program is you have to be online when you use it."

Super-fast Bluetooth on the way

The next generation of Bluetooth will support wireless data transmission rates approaching 1Gbit/s when the first chipsets for new devices arrive next year. The Bluetooth Special Interest Group (SIG), which is charged with steering the standard, said it will retain the same 10m range.

In its current form, Bluetooth 2.0's short range and maximum speed of 2.1Mbit/s mean it has been limited to devices such as wireless keyboards and headsets. The next version is expected to find many new roles. For

example, it could be used by a portable PC to stream a movie to a multimedia projector.

"Consumers are demanding higher bandwidth for their mobile, consumer electronics and communications devices," said Stephen Wood, Intel's UWB technology strategist and president of the WiMedia Alliance.

The Bluetooth SIG announced it had chosen the Intel-backed WiMedia Alliance's multi-band orthogonal frequency division multiplexing (MB-OFDM) technology over a rival technology

from the Freescale-backed UWB Forum. The SIG said the next-generation Bluetooth will be backwards-compatible with today's standard.

"It is critical that the UWB technology be compatible with Bluetooth radios and maintain the core attributes of Bluetooth wireless technology. Backwards compatibility with the over 500 million Bluetooth devices currently on the market is also an important consideration," said Michael Foley, executive director for Bluetooth SIG.

Shopper benchmarks Intel Mac

Computer Shopper has run its suite of performance tests on Apple's new Intel-based Mac mini. Since we tested and reviewed the Mac mini Core Duo last month, Apple has released a utility called Boot Camp (www.apple.com/macosx/bootcamp), which allows users to install Windows XP alongside OS X on a Mac. This has made it possible for us to run Windows benchmarks on a Mac for the first time ever.

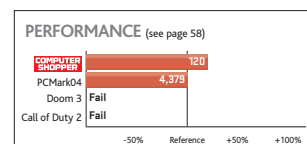
Our results show that the Mac mini is just as fast as a regular PC with a similar specification.

Windows PCs containing the same processor model, a 1.66GHz Intel Core Duo T2300, run as fast, and Athlon 64 3800+ PCs with the same amount of memory and integrated graphics have achieved very close benchmark scores.

The computer's integrated graphics are a weak point and the system could not run our Doom 3 or Call of Duty 2 tests. This is consistent with other PCs at the same price of £599 including VAT.

The Evesham Mini PC, reviewed on page 71, costs £100

less but is slower, with a benchmark score of 51 and a PCMark04 score of 2,435. It could not run the Doom 3 and Call of Duty 2 tests. The Mac mini scored 120 and 4,379 in its tests.



▲ A first for *Computer Shopper* as we are able to benchmark an Apple computer in the same way as a PC



US city launches free wireless network for all

San Francisco will run a free wireless network that will provide citizens with internet access and the scheme will not cost the city anything. Google and Earthlink were awarded a contract to create the WiFi network.

"Our goal [of providing free WiFi for all] sets the city apart," said Chris Vein, executive director of San Francisco's Department of Telecommunications and Information Services (DTIS).

"The most important purpose for the network is to provide all San Franciscans, especially low-income families and residents of disadvantaged communities, with equal access to the social, educational and economic opportunities available online," he continued.

Other cities with similar plans include New York, Amsterdam and Taipei. The City of London is also installing full WiFi coverage across the Square Mile, but this will cost £5 per hour to use. The London Borough of Islington offers free

WiFi for a mile along Upper Street and plans to expand the service across the whole borough.

Google said it will use advertising to pay for the San Francisco WiFi service, while Earthlink said it will offer a faster, paid-for service as an option. It expects to provide speeds of around 300Kbit/s. Analysts estimate that providing the service will cost Google less than \$20 million (around £11m).

The DTIS said Google and Earthlink's bid was the best of six submitted to the city, but the *San Francisco Chronicle* reported that privacy advocates had raised concerns about the scheme. "The company's proposal to track users' locations [is] a potential gold mine of information for law enforcement and private litigators," the paper warned.

Google's technology will enable the company to pinpoint a user's location to within a few hundred feet and use the information to tailor

advertisements from local businesses. Google said that it would delete this data after 180 days. But the search giant, along with other companies including Microsoft, AOL and Yahoo!, was recently subpoenaed by the US government and ordered to hand over user data.

"The greatest concern is that once you have that treasure trove of information, will people start to come looking for it?" asked Kurt Opsahl, staff attorney for the Electronic Frontier Foundation, which monitors threats to individual privacy on the internet.

However, Chris Vein said the DTIS believed the service would be implemented "in a way that protects the privacy and security of all users and provides consumer choice through open access".

Some industry observers point out that mobile phone companies have long known exactly where their customers are every time they make a call or browse the internet.

Philips unveils TV ad controller

We may soon be unable to switch channels when TV ads come onscreen. Philips Electronics has filed a patent for an 'advertisement controller', citing a device that can stop people changing TV channels during ad breaks or fast-forwarding through ad breaks if they are using a PVR-type device. This could apply to Media Center PCs, too.

When news of Philips' patent application emerged, viewers were angry. Philips acknowledged it has been deluged with furious phone calls and outraged emails.

"Philips never had the intention to force viewers to watch ads against their will and does not use this technology in any current Philips products. Nor do we have any plans to do so," said the company in an official statement.

Philips claimed that its patent was actually designed to empower the viewer, though at a cost. The idea was that the advertisement controller would let the viewer choose to watch a show without commercials for a small fee.

According to TV companies, advertising-supported

broadcasting has been under threat since VCRs took off in popularity in the 1970s and the increasing popularity of PVRs has the TV companies in a sweat. If advertisers get wise to the fact that no-one is watching their products, they will not pay TV companies to air them and, goes the argument, no programmes will be made.

However, Peter Pollack, a commentator at US technology website ArsTechnica, was doubtful that Philips' patent will catch on. "The fundamental downside to forcing commercials to run unimpeded is that the viewer retains freedom of movement, which would allow him or her to leave the room, cover the TV with a blanket, eat or use a product in direct competition with an advertisement. For it to be most effective, the device needs to work in concert with the couch to prevent unauthorised activity or movement while a commercial is running. Ideally, all phones would be put on hold and it would be impossible to deactivate the TV."

• See *News Analysis* on page 249.

MySpace cleans up

MySpace.com, the fast-growing social website with around 70 million users, has removed 200,000 profiles that it deemed objectionable. The site's owner, Rupert Murdoch's News Corp, has responded to criticisms that it was being used increasingly by paedophiles and hate groups.

Ross Levinsohn, the head of News Corp's internet division, admitted that MySpace had needed to remove profiles containing "hate speech" and material that was "too risqué".

MySpace is overwhelmingly used by teens, and increasingly pre-teens, which makes such content particularly unacceptable. Levinsohn said that the actions meant "the site... has become safer".

MySpace has become a poster child for what analysts are hailing as the next big thing on the web. It contains social networks in which people seek out similarly minded folk. Companies are particularly interested in selling targeted adverts to a young demographic that freely publishes detailed information about themselves.

IN BRIEF

FILE-SHARERS FACE LONG JAIL TIME

File-sharers in the US could spend more time in jail than people convicted of manslaughter if a proposed extension to the controversial Digital Millennium Copyright Act (DMCA) is adopted.

DMCA 2.0 would set a maximum prison sentence of 10 years for "non-commercial copyright infringement". Manslaughter carries an average term of 33 months.

Possible DMCA infringements could include simply being in possession of tools designed to break copy-protection (also known as DRM) systems, or posting copyright-protected photos, videos or news articles on a website, if the value exceeds \$1,000 (around £544).

CD SALES UP DESPITE DOWNLOADS

The UK music industry is celebrating record quarterly CD sales of 27.9 million, defying predictions that the rise of the digital market would hit CD sales.

Downloads rose by 152 per cent year on year, leading the BPI to suggest that the digital market is complementary to the physical, although only the previous week it told us that music downloading was having an adverse effect on CD sales. Digital tracks have revitalised singles sales and now comprise 78 per cent of a market that has grown by 44 per cent over the past year.

"Recent successes from Gnarl's Barkley and Gorillaz show how digital can be complementary to physical. The lesson of history is that new technology expands the market for music and that is why record companies are so enthusiastically embracing the new digital formats," said BPI chairman Peter Jamieson.

BRIT HACKER FACES EXTRADITION

Gary McKinnon, aka the Pentagon hacker, believes that his chances of being extradited to the US to face trial are "50/50". By the time you read this he will have found out, as the verdict was due on 10th May.

McKinnon is accused of hacking NASA systems during 2001 and 2002, and believes he will face a closed-door military trial and possibly a spell at Guantánamo Bay. He claims he accessed the PCs to uncover secret US research into UFOs.

IN BRIEF

SCIENTISTS POLISH DIAMOND TRANSISTORS

Scientists at the University of Chicago and Argonne National Laboratory in the USA have developed a method for making transistors from pure diamonds. The inventors believe that the transistors may be ideally suited for implanting in living tissue.

The transistors can operate in much higher working temperatures than conventional ones and are highly resistant to corrosive chemicals, *New Scientist* reported.

The key to getting diamonds to connect is an application of liquid molybdenum. Diamond vapour at 900°C is poured to form a wafer on top of which more of the vapour, 'doped' with nitrogen, forms a second layer.

Liquid molybdenum is then deposited to form the contacts before the whole thing is topped with more diamond, mixed with hydrogen so that it does not bond with the molybdenum contacts. These contacts poke through the surface to make connector electrodes.

AOL BLOCKS EMAIL ON COMPLAINTS SITE

AOL had an embarrassing weekend in April after it emerged that its mail servers were blocking emails critical of the company to its subscribers.

The DearAOL.com website is running a petition to protest against what it sees as a backdoor email tax. Earlier this year AOL, along with Yahoo!, announced that it was introducing a new premium service for bulk emails.

For a charge, said to be between .25c and 1c per message, the companies promise not to mark mass emailing from major corporations and ensure that messages reach their destinations. Many people see this as the beginning of a two-tier email system contrary to the spirit of the internet, where email delivery has always been delivered for free. The fear is that eventually AOL will try to move everyone to a pay-per-send service.

AOL protested its innocence and claimed it had not been trying to censor email. It said that the problem was fixed by its technicians within 24 hours of the problem being recognised. This happened to be 20 minutes after the Electronic Freedom Frontier issued a press release condemning the practice.

Holograms put 300GB of data on a single disc

InPhase Technologies has announced it will launch the first commercially available holographic storage disc drive in September. The drive will play CD-sized optical media capable of storing 300GB of data and transferring data at 20MB/s. Today's DVDs store 4.7GB of data. Even Blu-ray discs, Sony's next generation of optical storage media, will store only 50GB when they appear later this year.

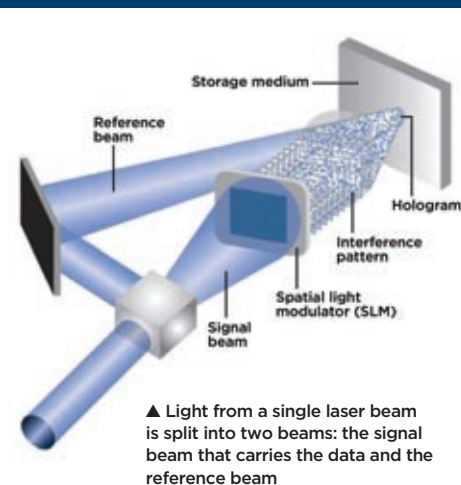
Holographic storage works by crossing a data beam with a reference beam to create a 3D interference pattern. This is recorded on a light-sensitive media. Because it records in a third dimension on a disc, rather than just on a 2D surface as CD and DVD recorders do, more data can be stored within a given area. InPhase said it will follow up with a family of storage drives with capacities ranging from 800GB to 1.6TB.

The company said it had "demonstrated the highest data density of any commercial technology by recording 515 gigabits of data per square inch", a 250 per cent increase over what it had achieved in April 2005. The company also said scientists had achieved data transfer rates of 1GB/s with holodiscs.

If these achievements can be reproduced commercially, holographic storage technology could produce revolutionary products. Enthusiasts predicted the introduction of DVD-sized discs that can hold hundreds of High Definition movies, tiny chip-sized devices for mobile phones that contain gigabytes of data to store detailed maps of the world, and ID cards containing detailed medical records. InPhase said it is working on a postage stamp-sized 5GB device aimed at the consumer electronics market as an alternative to flash memory. This could appear as early as next year.

However, it is initially targeting enterprise and government customers. The first drives will cost about

Full beam How data is recorded



\$12,000 (around £6,600), with each disc going for \$100 (around £55). As the first discs will be write-once, they will be marketed as archiving media.

IDC research director Wolfgang Schlichting predicted that, until 2010, holograph drives will be limited to the archival market and reach sales of \$100 million (around £55.3m). After that, falling costs could make them the next big storage medium for everything from home entertainment to enterprise.

InPhase is not the only company working in this field. Japanese firm Optware and US-based Aprilis are also planning to roll out holographic storage technologies in the near future.

Secure chips go cheap

IBM has developed a hardware-based encryption technology aimed at consumers and the medical and defence industries. It claims that it will bring high-level security to the masses at a cheap price.

It is intended that the so-called Secure Blue technology will be added to a device's microprocessor, where it can encrypt and decrypt data on the fly with none of the decrease in performance that software-based systems incur.

IBM claimed that Secure Blue is fundamentally more secure than software-based systems because it encrypts data stored on the hard disk and also while it is temporarily held in memory. Because it is hardware, it is also immune to being corrupted by hackers in the way that software systems are.

"Cryptography-based protection against unauthorised access is a security feature normally reserved for high-end

computers, making it difficult for hackers to break into or corrupt electronic systems. By providing the overlaying 'on-chip' security layer, Secure Blue removes a major barrier to the widespread use of crypto-based strong protection," said the company.

IBM says that it hopes to license the technology for use in mobile phones and PDAs, which generally come with low-powered processors unable to encrypt data. These types of devices are also increasingly becoming the targets of hackers.

IBM claimed that in a recent survey it conducted of businesses in 16 countries, around 58 per cent said that losses from cybercrime cost them more than physical crime. However, some industry watchers warned that Secure Blue technology could also be used to enable digital rights management (DRM) systems, restricting the use of downloaded content.

Viruses make tiny batteries

Scientists at the Massachusetts Institute of Technology (MIT) have used specially altered M13 viruses to create a 6nm-thick material that is much thinner than anything today's semiconductor plants can produce. Intel, AMD and IBM are still mastering 65nm fabrication for their latest products.

MIT said it used the viruses to synthesise electricity-conducting nanowires that are used as the anode in rechargeable lithium-ion batteries. The team is working on creating the rest of the battery using similar techniques, aiming to produce minute, rice-grain-sized batteries that could be used to power tiny devices.

The successful harnessing of viruses to engineer materials at nano-particle level promises a new age of precise and energy-efficient molecular self-assembly.